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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,564	12/12/2003	Jon H. Astle	1657/2012	2507

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EXAMINER	
GODDARD, LAURA B	
ART UNIT	**PAPER NUMBER**
1642	

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06/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/734,564	ASTLE ET AL.	
	Examiner	Art Unit	
	Laura B. Goddard, Ph.D.	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) *12-28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1. The Amendment filed March 20, 2007 in response to the Office Action of May 23, 2006, is acknowledged and has been entered. Previously pending claims 1, 2, 6 and 8 have been amended. Claims 12-28 remain withdrawn as being drawn to non-elected inventions. Claims 1-11 are currently being examined.

Objection Maintained

Specification

2. The disclosure remains objected to because it contains an embedded hyperlink and/or other form of browser-executable code on page 17. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Applicants amended the specification (dated 11/22/2006) to state "the world wide web at ncbi.nlm.nih.gov" in order to overcome the objection, however, the hyperlink "ncbi.nlm.nih.gov" is still an active web link and remains objected to.

New Rejections

(necessitated by amendments)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application 2003/0082652 A1, Holten-Andersen et al, filed 4/8/2002, published 5/1/2003 in view of WO 01/12781, Birse et al, filed 8/11/2000, published 2/22/2001 (IDS) (see sequence search "20070524_133451_us-10-734-564-4.rag", Geneseq database, result # 2).

The claims are now drawn to a method of diagnosing colon cancer in an individual comprising obtaining a serum sample from said individual, detecting the presence of TIMP1 and Reg1α in said sample, wherein the presence of TIMP1 and Reg1α is indicative of colon cancer in said individual, and wherein the step of detecting comprises contacting said serum sample with a first antibody which is capable of binding to TIMP1 and a second antibody that is capable of binding to Reg1α, and detecting the binding of said first and second antibody (claims 1-3); a method of diagnosing colon cancer in an individual comprising obtaining a serum sample, detecting the presence of TIMP1 and Reg1α and at least one other colon cancer specific marker in said sample, wherein the presence of TIMP1, Reg1α, and at said at least one other colon cancer-specific marker is indicative of colon cancer in said individual, wherein the step of detecting comprises contacting a serum sample with a first antibody that binds to TIMP1, a second antibody that binds to the at least one other colon cancer specific marker, and a third antibody that binds Reg1α, and detecting the

binding of the antibodies (claims 6, 8, 9), wherein the antibodies are labeled (claims 4 and 10), and wherein the individual is human (claims 5 and 11).

Holten-Andersen et al teach a method for diagnosing colon cancer in a human comprising detecting TIMP-1 in serum samples using an ELISA with TIMP-1 antibodies ([0003], [0010], Example 1, Example 4). Holten-Andersen et al teach diagnosing colon cancer using a combination of TIMP-1 with other tumor markers ([0002]; [0019]), including the tumor marker CEA which can be measured using a CEA EIA kit ([0044], Example 6, Example 16). Holten-Andersen et al teach that by adding an additional marker, an improvement in the diagnostic sensitivity of total TIMP-1 can be obtained, while maintaining a high specificity of 98%. The combination of CEA and TIMP-1 could be useful as a screening procedure to identify patients with a high risk of having colon cancer ([0226]).

Holten-Andersen et al does not teach Reg1α, specifically, as an additional colon cancer marker.

Birse et al teach diagnosing colon cancer in a patient comprising using labeled antibodies to detect the presence of Reg1α in patient serum (abstract; p. 1, lines 5-16; p. 7, lines 25 through p. 11, line 10; Table 1; p. 117, line 14 through p. 121, line 22; Example 12). Birse et al teach that Reg1α is the polypeptide encoded by "Gene No:1" (p. 7, lines 25 through p. 11, line 1) which is polypeptide SEQ ID NO:30. SEQ ID NO:30 is 100% identical to SEQ ID NO:4 of the instant application which is representative of Reg1α (see sequence search "20070524_133451_us-10-734-564-4.rag", Geneseq database, result # 2).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to add the tumor marker Reg1α to the method of diagnosing colon cancer taught by Holten-Andersen et al because Holten-Andersen et al teach using combinations of tumor markers with TIMP-1 and Birse et al teach that Reg1α is a colon cancer marker for diagnosis. One would have been motivated to add Reg1α marker to the method taught by Holten-Andersen et al in order to improve diagnostic sensitivity for colon cancer. One of ordinary skill in the art would have a reasonable expectation of success in diagnosing colon cancer using TIMP-1, Reg1α, and CEA because all three markers are known to be diagnostic of colon cancer and methods of their detection in patient serum using labeled antibodies have been successfully demonstrated.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application 2003/0082652 A1, Holten-Andersen et al, filed 4/8/2002, published 5/1/2003 and WO 01/12781, Birse et al, filed 8/11/2000, published 2/22/2001 as applied to claim 6 above, and further in view of Schrewe et al (Molecular and Cellular Biology, 1990, 10:2738-2748) (see sequence search result #1 in both PIR 80 and UniProt databases for SEQ ID NO:72 search, previous Office Action, search dated 4/12/2006).

The claims are drawn to a method of diagnosing colon cancer in an individual comprising obtaining a serum sample, detecting the presence of TIMP1 and Reg1α and at least one other colon cancer specific marker in said sample, wherein the presence of

TIMP1, Reg1α, and at said at least one other colon cancer-specific marker is indicative of colon cancer in said individual, wherein said at least colon cancer specific marker is SEQ ID NO:72 (claim 7).

Holten-Andersen et al and Birse et al teach a method for diagnosing colon cancer in a human comprising detecting TIMP-1, Reg1α and CEA in patient serum as set forth above.

Holten-Andersen et al does not teach that the CEA tumor marker is SEQ ID NO:72.

Schrewe et al teach that CEA is a widely used tumor marker, especially in the surveillance of colonic cancer patients (abstract). Schrewe et al teach the CEA colon cancer marker with 100% homology to SEQ ID NO:72 of the instant application (see sequence search result #1 in both PIR 80 and UniProt databases for SEQ ID NO:72 search, previous Office Action, search dated 4/12/2006).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to detect the presence of the CEA colon cancer tumor marker consisting of SEQ ID NO:72 in the method taught by Holten-Andersen et al because Schrewe et al teach teaches that SEQ ID NO:72, or CEA, is a widely used tumor marker for colon cancer. One would have been motivated to detect SEQ ID NO:72 as an additional tumor marker in the method of Holten-Andersen et al and Birse et al because Holten-Andersen et al and Schrewe et al teach that CEA is used as a tumor marker for colon cancer, hence one of ordinary skill in the art would have a

reasonable expectation of success in detecting SEQ ID NO:72 in addition to TIMP-1 and Reg1α in order to diagnose colon cancer.

5. All other rejections recited in the Office Action mailed May 23, 2006 are hereby withdrawn.

6. **Conclusion:** No claim is allowed.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. ' 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. ' 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura B. Goddard, Ph.D. whose telephone number is (571) 272-8788. The examiner can normally be reached on 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shanon Foley can be reached on 571-272-0898. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SUSAN UNGAR, PH.D
PRIMARY EXAMINER

Laura B Goddard, Ph.D.
Examiner
Art Unit 1642